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Refresher Worksheet 1

Multiplication of Whole Numbers

To multiply two whole numbers greater than 10, use the basic multiplication facts in the following way.

Example

Find the product of 1,259 and 63.

- Set up the problem. If one number has more digits, put it on top. Multiply the ones digit of the bottom number by the ones digit of the top number. If the product is more than 10, write the ones digit below the ones digit of the bottom number and “carry” the tens digit by writing it above the tens digit of the top number.

$$\begin{array}{r} 1259 \\ \times 63 \\ \hline \end{array}$$

- Now multiply the ones digit of the bottom number by the tens digit of the top number. Add the number you carried, if any. Write the ones digit of the result to the left of the ones digit from the first step. If there is a tens digit, carry it to the next step.

$$\begin{array}{r} 12 \\ 1259 \\ \times 63 \\ \hline 77 \end{array}$$

- Repeat the last step with the remaining digits of the top number.

$$\begin{array}{r} 12 \\ 1259 \\ \times 63 \\ \hline 3777 \end{array}$$

- Now repeat the process with the tens digit of the bottom number. First, write a 0 in the ones digit place, to remind yourself that you are multiplying by tens (60, not 6).

$$\begin{array}{r} 12 \\ 1259 \\ \times 63 \\ \hline 3777 \\ 0 \end{array}$$

- Multiply the tens digit of the bottom number by each of the digits in the top number, carrying as needed.

$$\begin{array}{r} 35 \\ 1259 \\ \times 63 \\ \hline 3777 \\ 75540 \end{array}$$

- If the bottom number has more digits, repeat the last two steps, writing 00 instead of just 0 to remind yourself that you’re multiplying hundreds. Finally, add the products you’ve found.

$$\begin{array}{r} 35 \\ 1259 \\ \times 63 \\ \hline 3777 \\ +75540 \\ \hline 79317 \end{array}$$

Practice

Find each product.

1. 65×31

2. 529×47

3. $2,782 \times 52$

4. 939×225

5. $1,336 \times 362$

6. $5,325 \times 107$

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Refresher Worksheet 2**Division of Whole Numbers**

Long division lets you divide large numbers. The *dividend* is the number to be divided into; the *divisor* is the number you divide by. The *quotient* is the result of the division.

Example

Find the quotient $12,558 \div 73$.

- Set up the problem. Then choose enough of the first digits of the dividend so that the resulting number is greater than the divisor. In this case, 1 and 12 are less than 73, so you should start with 125.

$$\begin{array}{r} 73 \overline{)12558} \end{array}$$
- Decide how many times the dividend will go into the number you've selected. (It must go more than 0 times but less than 10, or you've selected your number incorrectly.) Write the number of times above the *last digit* of the selected number.

$$\begin{array}{r} 1 \\ 73 \overline{)12558} \end{array}$$
- Multiply the number you just wrote by the divisor, and write it under the dividend. *Important:* Put the ones digit of the product under the number you wrote in the last step. Writing a 0 under each of the remaining digits of the dividend might help you keep track of which numbers you're using.

$$\begin{array}{r} 1 \\ 73 \overline{)12558} \\ \underline{7300} \end{array}$$
- Subtract.

$$\begin{array}{r} 1 \\ 73 \overline{)12558} \\ \underline{-7300} \\ 5258 \end{array}$$
- Repeat the four steps above. In this case, 5 and 52 are less than 73, so you have to use 525. Ask yourself, how many times will 73 go into 525? Since 7 goes into 52 seven times, try 7: 7×73 is 511, which is less than 525 but close enough that 8×73 would obviously be greater.

$$\begin{array}{r} 17 \\ 73 \overline{)12558} \\ \underline{-7300} \\ 5258 \end{array}$$
- Continue until you've used all the digits. You can indicate any remainder by writing "R" and the remainder next to the quotient.

$$\begin{array}{r} 171R67 \\ 73 \overline{)12558} \\ \underline{-7300} \\ 5258 \\ \underline{-5110} \\ 140 \\ \underline{-73} \\ 67 \end{array}$$

Practice

Find each quotient.

1. $930 \div 15$

2. $3,645 \div 45$

3. $15,155 \div 28$

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Refresher Worksheet 3

Adding and Subtracting Decimals

Adding and subtracting decimal numbers is the same as for whole numbers, but you have to be sure the place values are lined up.

Example

Find $83.6 + 20.7$.

- Set up the problem by lining the decimal points up. This puts the place values in the proper places.

$$\begin{array}{r} 83.6 \\ + 20.7 \\ \hline \end{array}$$

- Put a decimal under the decimals of the addends, then add as you would for whole numbers.

$$\begin{array}{r} 83.6 \\ + 20.7 \\ \hline 104.3 \end{array}$$

Find $973.22 - 80.05$.

- Set up the problem by lining the decimal points up. This puts the place values in the proper places.

$$\begin{array}{r} 973.22 \\ - 80.05 \\ \hline \end{array}$$

- Put a decimal under the other decimals, then subtract as you would for whole numbers.

$$\begin{array}{r} 973.22 \\ - 80.05 \\ \hline 893.17 \end{array}$$

Find $53.2 - 14.88$.

- Set up the problem by lining the decimal points up.

$$\begin{array}{r} 53.2 \\ - 14.88 \\ \hline \end{array}$$

- Notice that 53.2 has no number in the hundredths place, but 14.88 has an 8 in the hundredths place. You can write 0 in the hundredths place for 53.2. Then subtract as you would for whole numbers.

$$\begin{array}{r} 53.20 \\ - 14.88 \\ \hline 38.32 \end{array}$$

Practice

Find each sum or difference.

1. $32.5 + 82.4$

2. $144.97 + 837.66$

3. $206.619 + 93.11$

4. $71.8 - 20.2$

5. $248.23 - 80.89$

6. $419.6 - 146.48$

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Refresher Worksheet 4

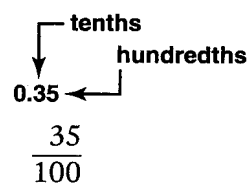
Writing Decimals as Fractions

The key to writing decimals as fractions is to understand *place value*. Each digit in a number tells how many groups are in the number. The first digit to the left of the decimal point tells how many *ones* are in the number. The next digit tells how many *tens*, and the next digit tells how many *hundreds*. The digits to the right of the decimal point tell what part of a whole is in the number. The first digit to the right tells how many *tenths* are in the number. The next digit tells how many *hundredths*.

Example

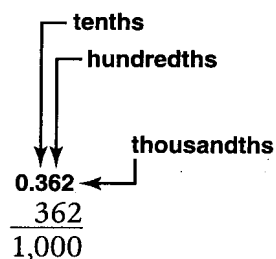
Write 0.35 as a fraction.

- Identify the place value of the last digit.
- Since the 5 is in the hundredths place, the denominator is 100. Write the digits in the numerator, without the decimal point.



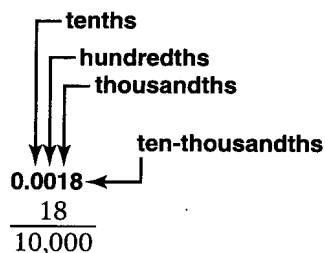
Write 0.362 as a fraction.

- Identify the place value of the last digit.
- Since the 2 is in the thousandths place, the denominator is 1,000. Write the digits in the numerator, without the decimal point.



Write 0.0018 as a fraction.

- Identify the place value of the last digit.
- Since the 8 is in the ten-thousandths place, the denominator is 10,000. Write the digits in the numerator, without the decimal point. Since 0018 is the same as 18, drop the leading zeroes.



Practice

Write each decimal as a fraction.

1. 0.21

2. 0.08

3. 0.882

4. 0.092

5. 0.5629

6. 0.0025

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Refresher Worksheet 5**Adding and Subtracting Fractions with the Same Denominator**

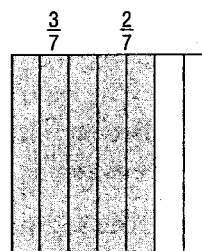
In a fraction, the denominator tells how many equal-sized pieces make up a whole. The numerator tells how many of those pieces you have.

When two fractions have the same denominator, both fractions involve pieces that are the same size. That means you can add them by thinking about the total number of pieces. You can subtract by thinking about how many pieces would be left over if you take some away.

Example

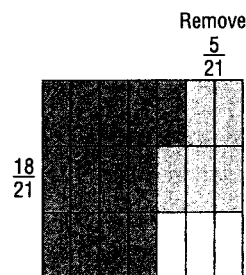
Add $\frac{2}{7} + \frac{3}{7}$.

- One fraction involves 2 pieces, each a seventh of a whole. The other fraction is 3 pieces, each a seventh of a whole.
- Together, there are 5 pieces, each a seventh of a whole, so the sum is $\frac{5}{7}$.



Subtract $\frac{18}{21} - \frac{5}{21}$.

- The first fraction involves 18 pieces, all the same size (all the shaded rectangles on the right).
- If you take away 5 of the pieces (the lightly-shaded rectangles), you have 13 left (the dark rectangles). The difference is $\frac{13}{21}$.

**Practice**

Find each sum or difference.

1. $\frac{4}{9} + \frac{2}{9}$

2. $\frac{3}{10} + \frac{6}{10}$

3. $\frac{7}{35} + \frac{18}{35}$

4. $\frac{9}{13} - \frac{4}{13}$

5. $\frac{14}{23} - \frac{8}{23}$

6. $\frac{33}{50} - \frac{18}{50}$

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Course 1 Pretest

You will need a customary ruler and a metric ruler for this test.

Find each product or quotient.

1.
$$\begin{array}{r} 34 \\ \times 96 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 268 \\ \times 37 \\ \hline \end{array}$$

3.
$$83 \overline{)3486}$$

Find each sum or difference.

4. $124.3 + 32.1$

5. $7.28 + 24.7$

6. $98.69 + 0.32$

7. $35.8 - 18.3$

8. $229.3 - 38.7$

9. $81.3 - 33.45$

10. $\frac{3}{7} + \frac{2}{7}$

11. $\frac{18}{25} + \frac{7}{25}$

12. $\frac{17}{100} + \frac{18}{100}$

13. $\frac{5}{9} - \frac{4}{9}$

14. $\frac{22}{25} - \frac{9}{25}$

15. $\frac{82}{100} - \frac{7}{100}$

Write the following decimals as fractions.

16. 0.3

17. 0.81

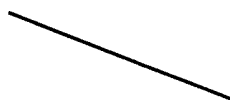
18. 0.073

Use the indicated unit of measure to find the length of each segment.

19. inch

20. millimeter

21. centimeter

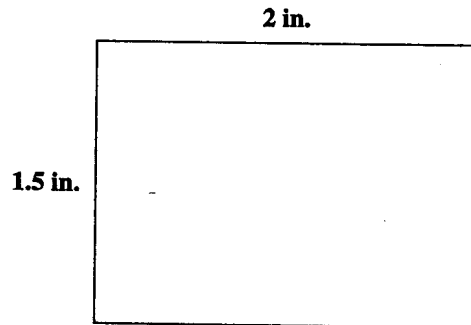
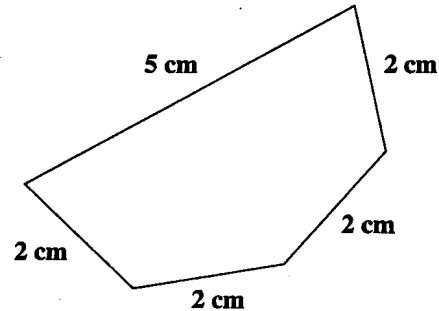


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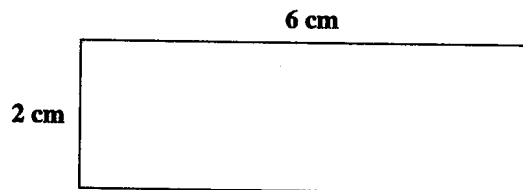
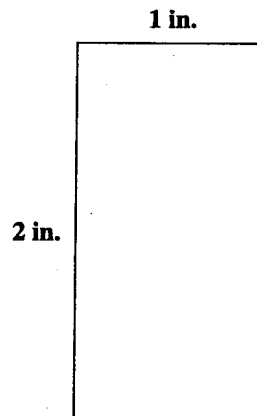
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Course 1 Pretest

Find the perimeter of each figure.

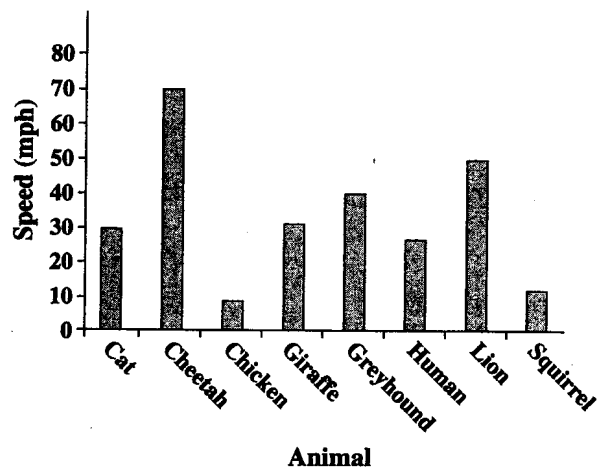
22.**23.**

Find the area of each rectangle.

24.**25.**

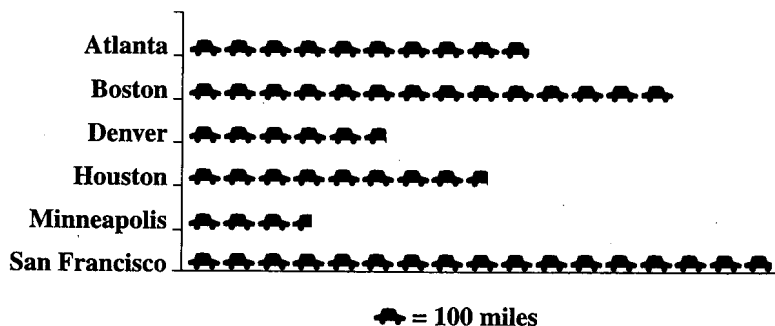
Assessment

The bar graph at the right shows the maximum speeds (in miles per hour) of several animals.

26. Of these animals, which is the slowest?**27.** Estimate the maximum speed for a human.**28.** A warthog has a maximum speed of about 30 miles per hour. Add a bar to the graph for the warthog.

Course 1 Pretest

This pictograph shows the driving distances from Omaha, Nebraska, to several U.S. cities. Each car represents 100 miles.



29. About how far is it from Omaha to Minneapolis?

30. Which of these cities is farthest from Omaha?

31. Omaha is about 1,000 miles from New Orleans. If New Orleans were added to this pictograph, how many car icons would appear next to it?

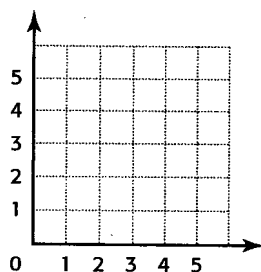
Plot each point on the grid. Label each point with the given letter.

32. A (1, 5)

33. B (2, 2)

34. C (3, 1)

35. D (4, 2)



Use the rule for the second column to complete the table.

36.

Input	Add 3
1	
2	
3	
5	
10	

37.

Input	Multiply by 2
1	
2	
3	
5	
10	